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Specialized Section on Standardization of Meat

Recommended guidelines to the United Nations Economic Commission for Europe bovine standard (Eating quality)

Submitted by the secretariat

The following document is submitted to the Working Party for adoption as the new Recommended guidelines to the UNECE bovine standard. It is prepared according to ECE/CTCS/2017/10 section II c and ECE/CTCS/2018/2 section VII a.

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Recommended research guidelines to the UNECE bovine standard language

Note

The adoption of a standardised consumer testing protocol and its provision through guidelines to the Bovine Standard language was approved by the Specialized Section in 2016 and has been widely used since that time providing a valuable common linkage for scientific reporting of consumer evaluated meat studies. In excess of 35,000 consumers have been utilized in eating quality research in Australia, China, UK, USA, France, Poland and New Zealand since the standard was adopted. This alone has enabled consumer sensory comparison under a common global framework. The standards recommended in this submission will add further value by providing UNECE endorsed standard definitions for description of carcase traits that can be utilised across studies. This allows for the direct comparison of results and, where desired, pooling of data to increase analysis power.

A peer reviewed study by Bonny et al (2016) examined both age and ossification in relation to consumer eating quality scores. This study included up to 18 muscles from 492 European carcasses. They reported that ossification had a more consistent relationship to eating quality than age in younger animals with age being more useful in older animals.

A collaborative study in May 2018 provides a 3,900-head data set evaluated by two senior MSA graders and three USDA certified grading cameras operated by United States Department of Agriculture (USDA) experts. These data can be utilised to establish conversion factors.

The working group chaired by Poland as lead Rapporteur recommends research guidelines complimentary to Section 5.7, Meat Quality Standards, of the UNECE Bovine Standard language. These additions enhance the language and enable more detailed description of traits for standardised assessment and reporting. The additions will facilitate international collaboration between research groups addressing beef eating quality and prediction while also providing standards that may be utilised in beef carcase grading. It is noted that while ribbed chilled carcase evaluation is utilised in USA, Canada, Japan, Korea and Australia for carcase description it is not common in Europe. The provision of common standards is therefore of value to European, South America research groups.

An important allied consideration is the agreement by AUS-MEAT LIMITED to provide training and certification in use of the standards to ensure that reported assessments are consistent. It is noted that while the AUS-MEAT reference standards are listed within the UNECE bovine standard language at present they are effectively not able to be utilised without the provision of training and certification and the ability for standards to be purchased. The working group is pleased to report that AUS-MEAT have advised that they are willing to provide these needs within Europe and other regions on a commercial basis including through collaboration with the International Meat Research 3G Foundation. AUS-MEAT and an expert scientific working group appointed by the Foundation will further consider and endorse detailed standards application for documentation as addendums to the UNECE Bovine Standard language.

The following research guidelines complementary to **Section 5.7 Meat Quality Standards** are recommended:

Section 5.7.1 Meat Colour Reference Standards

It is recommended that the meat colour chips be made available for purchase to persons who have participated in a certified training course and attained a pass standard.

Research guideline section. pH Measurement Standards

It is recommended that pH measurement be defined within the language. pH measurement must be undertaken with a calibrated pH meter and recorded in conjunction with temperature. It is recommended that a Bendall correction factor to 7°C be adopted for reporting pH.

Section 5.7.2 Fat Colour Reference Standards

It is recommended that the fat colour chips be made available for purchase to persons who have participated in a certified training course and attained a pass standard.

Section 5.7.3 Marbling Reference Standards

It is recommended that in addition to the current AUS-MEAT marbling scores with a 0 to 9 range referenced in the UNECE Bovine Standard language, the Meat Standards Australia marbling standards which provide for increments of 10 over a scale from 100 to 1190 be referenced and made available. These scores are generally aligned with United States Department of Agriculture (USDA) marbling standards and it is further recommended that an expert working group be formed by USDA and MSA/AUS-MEAT to establish an agreed conversion between the two scales where necessary. It is recommended that the marbling standards be made available for purchase to persons who have participated in a certified training course and attained a pass standard.

Research guideline section: Skeletal Ossification Reference Standards

The MSA/USDA visual plates are recommended as assessment tools to be made available in conjunction with training and certification. It is recommended that the ossification standards be made available for purchase to persons who have participated in a certified training course and attained a pass standard.
Note: Skeletal ossification is utilised as a carcase maturity assessment in USA and Australia where accurate animal age is generally not available.

Research guideline section; Animal Age Reference Standard

It is recommended that where birth date data is available animal age be recorded in days for research reporting purposes.

Research guideline section: Hump Height Reference Standard

It is recommended that hump height be included in the research guidelines due to its value in contributing to eating quality prediction for tropically adapted cattle and potential application in assessing entire male cattle.